AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

Claims 1-12 (cancelled)

Claim 13 (Previously Presented):   A system for on-line display of property prediction for hot rolled coils in a hot strip mill comprising:

a unit for providing data on rolling schedule with chemistry from the steel making stage;

one or more field devices for measuring process parameters during hot rolling;

a programmable logic controller for acquiring data of measured parameters from said field devices and transmitting said data parameters to a processor;

means for converting the measured data from time domain to space domain using segment tracking; and

a computation module for processing said converted space domain data for predicting mechanical properties along the length and through the thickness of the strip being rolled; wherein, said predicted data on mechanical properties outputted from said computation module is stored in another unit for use by said scheduling unit at production planning and scheduling level.

Claim 14 (Previously Presented):   The system as claimed in claim 13, wherein said field devices include one or more of a pyrometer, a speedometer, a thickness gauge, and a solenoid valve for measuring data on process parameters.

Claim 15 (Previously Presented):   The system as claimed in claim 13, wherein said programmable logic controller is a Westinghouse PLC 26 connected to said field devices through coaxial cable using remote I/O.

Claim 16 (Previously Presented):   The system as claimed in claim 14, wherein said programmable logic controller is configured to capture data from said field devices over 0.01 sec. using WESTNET I data highway with Daisy Chain Network topology.

Claim 17 (Previously Presented):   The system as claimed in claim 13, wherein said processor is an ALSTOM VXI 186 processor and the data transfer between said processor and said programmable logic controller is through WESTNET II using coaxial cable with Token Pass Network topology.

Claim 18 (Previously Presented):   The system as claimed in claim 13, wherein said computation module includes a deformation sub-module for determining final austenite grain size after finish rolling.

Claim 19 (Previously Presented):   The system as claimed in claim 13, wherein said computation module includes a thermal sub-module for determining the temperature drop during radiation while cooling said hot rolled strip.

Claim 20 (Previously Presented):   The system as claimed in claim 13, wherein said computation module includes a microstructural sub-module for determining microstructural changes during phase transformation.

Claim 21 (Previously Presented):   The system as claimed in claim 13, wherein said computation module includes a precipitation sub-module for determining an amount of aluminium nitrogen in a solid solution and in precipitates after cooling.

Claim 22 (Previously Presented):   The system as claimed in claim 13, wherein said computation module includes a structural property correlation sub-module for calculating a yield strength, ultimate tensile strength and percentage elongation based on the phases present.

Claim 23 (Previously Presented): The system as claimed in clam 13, wherein the system includes a display unit for displaying one or more of a cooling temperature, ferrite grain size, yield strength, ultimate tensile strength, percentage elongation and nitrogen in solid solution/precipitate.

Claim 24 (Previously Presented): The system as claimed in claim 13, wherein the system includes a data warehousing device for storing the data generated by said computation module.

Claim 25 (Previously Presented): The system as claimed in claim 16, wherein said processor is an ALSTOM VXI 186 processor and the data transfer between said processor and said programmable logic controller is through WESTNET II using coaxial cable with Token Pass Network topology.

Claim 26 (Previously Presented): The system as claimed in claim 14, wherein said computation module includes a deformation sub-module for determining final austenite grain size after finish rolling.

Claim 27 (Previously Presented): The system as claimed in claim 18, wherein the system includes a display unit for displaying one or more of a cooling temperature, ferrite grain size, yield strength, ultimate tensile strength, percentage elongation and nitrogen in solid solution/precipitate.

Claim 28 (Previously Presented): The system as claimed in claim 16, wherein the system includes a display unit for displaying one or more of a cooling temperature, ferrite grain size, yield strength, ultimate tensile strength, percentage elongation and nitrogen in solid solution/precipitate.

Claim 29 (Previously Presented): The system as claimed in claim 19, wherein the system includes a data warehousing device for storing the data generated by said computation module.

Claim 30 (Previously Presented): The system as claimed in claim 23, wherein the system includes a data warehousing device for storing the data generated by said computation module.

Claim 31. (New) A system for on-line display of property prediction for hot rolled coils in a multiple stand rolling mill comprising:

a unit for providing data on rolling schedule with chemistry from the steel making stage;

one or more field devices for measuring process parameters during hot rolling;

a programmable logic controller for acquiring data of measured parameters from said field devices and transmitting said data parameters to a processor;

means for converting the measured data from time domain to space domain using segment tracking; and

a real-time computation module for processing said converted space domain data for predicting mechanical properties along the length and through the thickness of the strip being rolled; wherein, said predicted data on mechanical properties outputted from said computation module is stored in another unit for use by said scheduling unit at production planning and scheduling level.